(FILE 'HOME' ENTERED AT 11:45:03 ON 04 JAN 1999)

FILE 'CAPLUS, WPIDS, MEDLINE, PROMT' ENTERED AT 11:45:16 ON 04 JAN 1999

L1 590 S BIOACTIVE GLASS
L2 20 S L1 (L) (INFLAMMAT? OR ANTI (W) INFLAMMAT?)
L3 17 DUP REM L2 (3 DUPLICATES REMOVED)

FILE 'HOME' ENTERED AT 11:48:38 ON 04 JAN 1999

=> s bioactive glass

L1 590 BIOACTIVE GLASS

=> s l1 (l) (inflammat? or anti (w) inflammat?)

L2 20 L1 (L) (INFLAMMAT? OR ANTI (W) INFLAMMAT?)

=> dup rem l2

PROCESSING COMPLETED FOR L2
L3 17 DUP REM L2 (3 DUPLICATES REMOVED)

=> d 1-17 bib hit

L3 ANSWER 1 OF 17 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-506489 [43] WPIDS
DNN N98-394814 DNC C98-152868
TI Implantable bone paste for inducing new bone growth - comprises gelatin matrix and bio-absorbable osteogenic compound, especially demineralised bone matrix.
DC B04 D22 L02 P34
IN GROOMS, J M; WIRONEN, J F
PA (UYFL) UNIV FLORIDA RES FOUND INC; (UYFL-N) UNIV FLORIDA TISSUE BANK INC
CYC 72
PI WO 9840113 A1 980917 (9843)* EN 39 pp
RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AU BA BB BG BR CA CN CU CZ EE GE GW HU ID IL IS JP KP KR LC LK LR LT LV MG MK MN MX NO NZ PL RO SG SI SK SL TR TT UA US UZ VN YU
ADT WO 9840113 A1 WO 98-US4904 980312
PRAI US 97-816079 970313
AB WO 9840113 A UPAB: 981028

An implantable bone paste composition comprises gelatin as a carrier for substantially bioabsorbable osteogenic components for use in a patient in need of new bone growth.

The gelatin is thermally crosslinkable at or slightly above the temperature of the organism into which it is to be implanted, preferably about 38 deg. C, and is in amount 20-45 wt.%.

The osteogenic component is selected from:

(i) demineralised bone matrix (DBM);

(ii) **bioactive glass** ceramic, BIOGLASS (RTM), bioactive ceramic, calcium phosphate ceramic, hydroxyapatite, hydroxyapatite carbonate, corraline hydroxyapatite, calcined bone, tricalcium phosphate or mixtures;

(iii) bone morphogenetic protein, TGF-beta, PDGF or mixtures, natural or recombinant; and

(iv) mixtures of (i) - (iii).

The gelatin, the demineralised bone matrix or both are derived from the species into which the bone paste is to be implanted.

The DBM is in amount 0-40 (preferably 15-33) wt.%.

The **bioactive glass** is BIOGLASS (RTM), especially of diameter 0.5-710 mm.

Component (ii) is in amount 0-40 wt.%.

The composition comprises antibiotics, bone morphogenetic or other proteins, whether derived from natural or recombinant sources, wetting agents, glycerol, carboxymethyl cellulose (CMC), growth factors, steroids, non-steroidal **anti-inflammatory** compounds or combinations, and comprises 0.0001-0.1 mg/ml bone morphogenetic protein.

The composition is freeze dried.

The gelatin is human, bovine, ovine, equine, canine or mixtures, preferably derived from human collagen sources (especially human skin, bone, cartilage, tendon, connective tissue or mixtures) via enzymatic, acid or alkaline extraction. The gelatin has a molecular weight greater than 50,000 daltons.

Preferably, the osteogenic component is powdered DBM, in amount 0-40 wt.%, with particles of size 80-850 mm diameter, provided that if the DBM is absent, then a bone growth factor (especially morphogenetic protein, TGF-b or mixtures) is present at a concentration of at least 0.0001 mg/ml.

The composition further comprises cortical, cancellous or cortical and cancellous bone chips, of size 80 mm to 10 mm.

USE - For inducing bone formation in vivo, e.g. repair of non-union fractures, periodontal ridge augmentation, arthrodesis of spinal or other joints, spinal fusion procedures and implant fixation (all claimed); also in craniofacial surgery and impaction grafting.

ADVANTAGE - The bone paste is easy to handle and store, adheres to the implantation site, is both osteo-conductive and osteoinductive, is thermally crosslinkable and bioabsorbable.

Dwg.0/4

L3 ANSWER 2 OF 17 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-041752 [04] WPIDS
DNN N98-033468 DNC C98-013903
TI Fluid composition adapted for e.g. repair and replacement of hard or soft tissue - comprises homogeneous suspension of bio-active and bio-compatible glass particulate in aqueous solution of dextran or dextran derivative.
DC B06 D21 D22 L01 P32
IN BATICH, C; HENCH, L L; LA TORRE, G; TOREKI, W; WEST, J K; WILSON, J; LATORRE, G
PA (UYFL) UNIV FLORIDA RES FOUND INC
CYC 73
PI WO 9745070 A1 971204 (9804)* EN 14 pp
RW: AT BE CH DE DK EA ES FI FR GB GH GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN
AU 9730755 A 980105 (9821)
ADT WO 9745070 A1 WO 97-US8655 970529; AU 9730755 A AU 97-30755 970529
FDT AU 9730755 A Based on WO 9745070
PRAI US 96-657713 960530
AB WO 9745070 A UPAB: 980126

Fluid composition (I), particularly adapted for the repair, replacement, reconfiguration, reconstruction or augmentation of selected soft tissue and/or hard tissue (bone) anatomic structures, capable of injection via a surgical needle into an animal comprises a homogeneous suspension of bio-active and bio-compatible glass particulate composition of particle size 250-90 mu m in an aqueous solution of dextrans or of dextran derivatives of average molecular weight 1 multiply 104-2 multiply 106 Daltons and optionally one or more preservative, colouring, flow enhancing or suspension enhancing agents.

USE - (I) is used for the repair of soft tissue or hard bone of mammals, especially humans (claimed). They are used to treat

particularly vocal cords, periurethral tissue, maxilla, mandible, temporomandibular joi[redacted]hin, zygomatic arch, nose, ea[redacted]ooth root canal, tooth pulp caps[redacted]ental restoration, defects in [redacted], vertebrae spaces, articulating joints, urethra and subcutaneous and intradermal soft tissues.

ADVANTAGE - The **bioactive glass** materials form strong adherent bonds comprising a thin layer of collagen at a glass/soft tissue interface upon injection in the animal, form strong adherent bonds comprising a layer of collagen not more than 1-3 fibres thick, become encapsulated after injection in the animal with a collagen layer attached by chemical and mechanical bonding to the bioactive surface and do not, after injection, contribute to the formation of excess scar tissue, giant cells or acute **inflammatory** cells and do not cause long lasting foreign body reactions. The compositions can be injected using a standard medical syringe and needle and after injection the dextran derivatives begin to degrade and be removed from the mixture by phagocytosis. Degradation and removal is complete within 2-20 days. The **bioactive glass** particles bond to the soft tissue sites and create a long-lasting augmentation of the tissue.
Dwg.0/0

L3 ANSWER 3 OF 17 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-457205 [42] WPIDS
DNN N97-380827 DNC C97-145904
TI Osteogenic device used in ectopic bone induction, healing segmented bone defects, etc. - comprises bone morphogenic protein, collagen component, shapable porous carrier body and optional growth factors.
DC B04 D22 P34
IN LINDHOLM, T S; MATTINEN, A
PA (LIND-I) LINDHOLM T S; (MATT-I) MATTINEN A
CYC 70
PI WO 9731661 A1 970904 (9742)* EN 63 pp
RW: AT BE CH DE DK EA ES FR GB GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG
W: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
AU 9647216 A 970916 (9803)
ADT WO 9731661 A1 WO 96-FI118 960229; AU 9647216 A AU 96-47216 960229, WO 96-FI118 960229
FDT AU 9647216 A Based on WO 9731661
PRAI WO 96-FI118 960229
AB WO 9731661 A UPAB: 971021
An osteogenic device comprises: (a) a bone morphogenetic protein (BMP) selected from partially purified native BMP, recombinant BMP and modified BMP complex; (b) a collagen component; (c) a shapable porous carrier body, and (d) optional growth factors. Also claimed is a method for preparing the device.

The BMP is a modified BMP complex from which fraction III, a medium molecular wt. protein with immunogenic properties, is removed, the complex consisting of a mixture of fraction I, a high molecular wt. (100-700 kDa) protein with osteoinductive BMP activity, and a low molecular wt. (15-20 kDa) protein with osteoinductive BMP activity. Alternatively the BMP is fraction III, a low molecular wt. (15-25 kDa) protein with prolonged storage properties. The collagen is selected from collagen mixtures, atelopeptide collagens, type IV collagen and type I collagen I, preferably type IV collagen. The shapable, porous carrier body is selected from hydroxyapatite, tricalcium phosphate, **bioactive glass** and preferably biocoral originating from a coral skeleton. The device might contain a medium molecular wt. (25-55 kDa) immunogenically and **inflammatory** protein.

USE - The device is useful in ectopic bone induction and

healing of segmental bone defects in vertebrates. It can be used for the treatment of skele[redacted]disorders and deformations, i[redacted]ding the repair of large bone defects originating from trauma, e[redacted]on of tumours and congenital malformations, reconstructing bone stocks worn off by an implanted endoprothesis in revision operations and healing delayed or non-united fractures.

ADVANTAGE - The device has improved osteoinductive properties (claimed). The device also has decreased immunogenic properties, improved inductive activity in bone formation and less **inflammatory** reactions, improved resorbability and storability.

Dwg.0/3

L3 ANSWER 4 OF 17 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 1
AN 1997:437918 CAPLUS
DN 127:113321
TI Particulate bioglass as a grafting material in the treatment of periodontal intrabony defects
AU Zamet, J. S.; Darbar, U. R.; Griffiths, G. S.; Bulman, J.S.; Bragger, U.; Burgin, W.; Newman, H. N.
CS Departments of Periodontology Eastman Dental Institute for Oral Health Care Sciences, University College London, London, WC1X 8LD, UK
SO J. Clin. Periodontol. (1997), 24(6), 410-418
CODEN: JCPEDZ; ISSN: 0303-6979
PB Munksgaard
DT Journal
LA English
AB The present clin. trial was designed to evaluate the effects of a **bioactive glass**, Perioglas in the treatment of periodontal intrabony defects. 20 Patients, 23-55 yr of age (44 sites), with intrabony defects completed the 1-yr study. Teeth with furcation involvement were excluded. After completion of initial therapy, defects were randomly assigned to either a test or control procedure. Following flap reflection, root planing and removal of chronic **inflammatory** tissue in both groups, the test defects were restored with the **bioactive glass** particulate material. Mucoperiosteal flaps were replaced, sutured and a periodontal dressing was used. All the patients received postoperative antibiotics and analgesics and were seen at 1 wk for suture removal. Follow-up was then carried out weekly and at 3 mo, 6 mo, 9 mo and 1 yr post-surgery. Plaque score, bleeding score, probing pocket depth (PPD), probing attachment level (PAL) and gingival recession were recorded at baseline, 3 mo and 1 yr. Standardized radiographs for computer-assisted densitometric image anal. (CADIA) were taken at baseline, immediately post-operatively and at 1 yr. The CADIA data showed a significant increase (F-ratio: 15.67, $p<0.001$) in radiog. d. and vol. between the defects treated with the Perioglas when compared to those treated with surgical debridement only. PPD and PAL showed significant improvements in both exptl. and control sites, with a greater trend to improvement in the exptl. sites. It was concluded that this **bioactive glass** is effective as an adjunct to conventional surgery in the treatment of intrabony defects.

L3 ANSWER 5 OF 17 CAPLUS COPYRIGHT 1999 ACS
AN 1998:389624 CAPLUS
DN 129:113440
TI Implantation of bioactive and inert glass fibers in rats - soft tissue response and short-term reactions of the glass
AU Brink, M.; Laine, P.; Narva, K.; Yli-Urpo, A.
CS Department of Chemical Engineering, Abo Akademi University, Abo/Turku, 20500, Finland
SO Bioceram., Proc. Int. Symp. Ceram. Med. (1997), 10, 61-64
CODEN: BPCMFX

PB Elsevier Science Ltd.
DT Journal
LA English
AB The purpose of this work was to develop a **bioactive glass** fiber that resorbs in soft tissue without causing **inflammatory** reactions. In addn., the glass should bond to bone and be easily manufd. Two different biocompatible glasses were chosen for implantation, and glass surface reactions as well as soft tissue response were evaluated. An inert com. glass fiber was used as ref. After implantation, all glasses were in good contact with the surrounding tissue. The biocompatible glasses were severely resorbed after 28 days in soft tissue indicating that these glasses are suitable for membranes in orthopedic and maxillofacial surgery, and for reinforcement of resorbable biopolymers. The ref. glass fiber did not show any signs of reaction.

L3 ANSWER 6 OF 17 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 97-011858 [01] WPIDS
CR 95-200408 [26]
DNN N97-010335 DNC C97-003242
TI Bioactive glass fibres useful in composite materials,e.g., for hip replacements - comprise silica, calcium oxide, phosphorus pentoxide and sodium oxide, with an amt. of aluminium oxide to reduce surface reactivity of the fibres..
DC A96 D22 F01 L01 P34
IN DUCHEYNE, P; KO, F; LACOURSE, W; MARÇOLONGO, M S
PA (UYPE-N) UNIV PENNSYLVANIA
CYC 22
PI WO 9636368 A2 961121 (9701)* EN 42 pp
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP
AU 9657313 A 961129 (9712)
WO 9636368 A3 961219 (9713)
US 5645934 A 970708 (9733) 19 pp
US 5721049 A 980224 (9815) 20 pp
EP 871504 A2 981021 (9846) EN
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
ADT WO 9636368 A2 WO 96-US6439 960508; AU 9657313 A AU 96-57313 960508; WO 9636368 A3 WO 96-US6439 960508; US 5645934 A CIP of US 93-152962 931115, US 95-436585 950508; US 5721049 A CIP of US 93-152962 931115, Div ex US 95-436585 950508, US 95-463009 950605; EP 871504 A2 EP 96-915566 960508, WO 96-US6439 960508
FDT AU 9657313 A Based on WO 9636368; US 5645934 A CIP of US 5468544; US 5721049 A CIP of US 5468544; EP 871504 A2 Based on WO 9636368
PRAI US 95-463428 950605; US 95-436585 950508; US 95-461109 950605; US 95-463009 950605; US 93-152962 931115
AB WO 9636368 A UPAB: 970820
The following are claimed: (A) **bioactive glass** fibre comprising 40-60 mole.% SiO2, 10-21mole.% CaO, 0-4 mole.% P2O5, at least 19 mole.% Na2O and greater than 0.2 mole.% Al2O3, the amt. of Al2O3 being selected such that the surface reactivity of the fibre is reduced. (B) biocompatible composite of tows of bone bioactive fibres (comprising at least 19 mole.% Na2O and greater than 0.2 mole.% Al2O3), the tows of bioactive fibres being intermingled with tows of structural fibres in a non-bioabsorbable polymeric matrix. (C) mesh comprised of bioactive fibres of the above compsn., the amt. of Al2O3 being selected such that the surface reactivity of the fibre is reduced when interwoven with structural fibres. (D) affixing an implant to bone tissues comprising placing an implant which comprises a fixation section for receiving bone ingrowth, at least 30% of the fixation section comprising bioactive fibres as described in (A). (E) prosthesis for total hip arthroplasty comprising a distal end and a proximal end, the prosthesis comprising a woven mesh of bioactive fibres as described in (A) and structural fibres impregnated with a polymer.

USE- The bioactive fibres enhance bone growth and bond to surrounding bone tissue. They may be used in, e.g., hip replacements.

ADVANTAGE- The composites are strong and stable in the long term. They have a structural modulus which closely matches that of bone. Enhanced bonding to bone reduces the potential for abrasion of the composite, reducing **inflammatory** side effects.

Dwg.0/11

ABEQ US 5645934 A UPAB: 970813

A **bioactive glass** fibre comprising 40-60% SiO2, 10-21% CaO, up to about 6.3% P2O5, at least 19% Na2O, and greater than 0.2% Al2O3, by mole, the amount of Al2O3 selected such that the surface reactivity of the fibre is reduced.

Dwg.1/11

ABEQ US 5721049 A UPAB: 980410

The following are claimed: (A) **bioactive glass** fibre comprising 40-60 mole.% SiO2, 10-21mole.% CaO, 0-4 mole.% P2O5, at least 19 mole.% Na2O and greater than 0.2 mole.% Al2O3, the amt. of Al2O3 being selected such that the surface reactivity of the fibre is reduced. (B) biocompatible composite of tows of bone bioactive fibres (comprising at least 19 mole.% Na2O and greater than 0.2 mole.% Al2O3), the tows of bioactive fibres being intermingled with tows of structural fibres in a non-bioabsorbable polymeric matrix. (C) mesh comprised of bioactive fibres of the above compsn., the amt. of Al2O3 being selected such that the surface reactivity of the fibre is reduced when interwoven with structural fibres. (D) affixing an implant to bone tissues comprising placing an implant which comprises a fixation section for receiving bone ingrowth, at least 30% of the fixation section comprising bioactive fibres as described in (A). (E) prosthesis for total hip arthroplasty comprising a distal end and a proximal end, the prosthesis comprising a woven mesh of bioactive fibres as described in (A) and structural fibres impregnated with a polymer.

USE- The bioactive fibres enhance bone growth and bond to surrounding bone tissue. They may be used in, e.g., hip replacements.

ADVANTAGE- The composites are strong and stable in the long term. They have a structural modulus which closely matches that of bone. Enhanced bonding to bone reduces the potential for abrasion of the composite, reducing **inflammatory** side effects.

Dwg.0/11

L3 ANSWER 7 OF 17 CAPLUS COPYRIGHT 1999 ACS

AN 1997:362129 CAPLUS

DN 127:39732

TI Long term behavior of bioactive glass cone and granules in rabbit bone

AU Heikkila, J. T.; Salonen, H.-R.; Yli-Urpo, A.; Aho, A. J.

CS Dep. Surgery, Div. Orthopaedics, Turku Univ. Hosp., Turku, 20500, Finland

SO Bioceram., Proc. Int. Symp. Ceram. Med. (1996), 9, 123-126

CODEN: BPCMFX

PB Elsevier

DT Journal

LA English

AB Bioactive glasses have proven to be non-toxic, biocompatible, bioactive, osteoconductive and bone bonding by various authors. Although Bioglass, 45S5 is com. available and **bioactive glass** S53P4 in clin. tests at the moment, only few long-term in vivo tests exists. To gain more clin. experience on the intraosseal use of S53P4, it is necessary to widen the knowledge on the long term exptl. in vivo reactions. The aim of the present study was to evaluate the long term reactions of bone towards the **bioactive glass** granules (S53P4) with .vphi. of 630-800 .mu.m in rabbit cancellous bone and the fate of S53P4

granules. To evaluate the surface reaction, cones of S53P4 were implanted in the dist[redacted]chondral femur. The observa[redacted] periods were 78 and 104 mo. [redacted]reaction layer formation at th[redacted]rface of S53P4 is a never ending continuous process. The main part of the vol. of the granules was transformed into Ca,P during the observation periods. The vol. of the glass granules seemed to diminish during the long-term observation period. The thickening of the reaction layer seemed to continue. Material related **inflammatory** reactions were not obsd. during the resorption phase of S53P4 nor did S53P4 seem to disturb bone formation within the defect even after long observation periods. The histol. structure of the formed bone was normal at the end of the observation periods.

L3 ANSWER 8 OF 17 MEDLINE
AN 96331395 MEDLINE
DN 96331395
TI The applications of machinable bioactive glass ceramics in maxillofacial augmentation.
AU Chen X; Li S; Huang Z
CS Department of Plastic Surgery, Hangzhou Plastic Surgery Hospital.
SO CHUNG-HUA CHENG HSING SHAO SHANG WAI KO TSA CHIH [CHINESE JOURNAL OF PLASTIC SURGERY AND BURNS], (1995 Nov) 11 (6) 419-20.
Journal code: CHI. ISSN: 1000-7806.
CY China
DT Journal; Article; (JOURNAL ARTICLE)
LA Chinese
EM 199611
AB Machinable **bioactive glass** ceramics (MBGC) has been employed in maxillofacial augmentation as a substitute for bone grafts in 36 patients with satisfactory results. Two years' follow-up did not show **inflammatory** reaction and rejection of the implant. Clinical applications of MBGC proved its reliability.

L3 ANSWER 9 OF 17 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 2
AN 1995:725390 CAPLUS
DN 123:123086
TI Bone-bonding behavior of three heat-treated silica gels implanted in mature rabbit bone
AU Kitsugi, T.; Nakamura, T.; Oka, M.; Cho, S.-B.; Miyaji, F.; Kokubo, T.
CS Faculty Medicine, Kyoto Univ., Kyoto, 606, Japan
SO Calcif. Tissue Int. (1995), 57(2), 155-60
CODEN: CTINDZ; ISSN: 0171-967X
DT Journal
LA English
AB Silica gel has been reported to induce apatite nucleation on its surface in vitro and it can act as a stimulant that induces formation of chem. apatite (Ca-P) layers on the surfaces of **bioactive glass**-ceramics. In this study apatite formation in response to and the bone-bonding behavior of silica gels implanted in the tibiae of mature rabbits were studied. Implants were made from three silica gels treated at 400, 800, and 1000.degree., and the effects of such heat treatment on the above parameters were investigated. The silica gel was made by hydrolysis and polycondensation of tetraethoxysilane in aq. soln. contg. polyethylene glycol. Rectangular implants (15 mm .times. 10 mm .times. 2 mm) of each heat-treated silica gel were implanted into both tibial bones of mature male rabbits, which were killed 4 or 8 wk after implantation, and the tibiae contg. the implants were dissected out. The bone-implant interfaces were investigated using Giemsa surface staining, contact microradiog., SEM-electron probe microanal., and X-ray diffraction. Histol., no bonding of bone to any of the silica gels was obsd. at any time postimplantation. Soft

tissue was obsd. at the bone-silica gel interface, but there were no giant foreign body or [redacted]**mmatory** cells. A Ca-P rich [redacted] layer was obsd. only on small areas of the surfaces of [redacted]silica gels treated at 400 and 800.degree. 4 and 8 wk after implantation. X-ray diffraction anal. confirmed the presence of hydroxyapatite in these Ca-P-rich layers. At no time after implantation was a Ca-P rich layer obsd. on the surface of silica gel treated at 1000.degree.. It is thought that a special type of silanol group, which forms on silica gel treated below 800.degree., is responsible for the apatite nucleation. A Ca-P layer does not always form reliably on the surface of silica gels.

L3 ANSWER 10 OF 17 PROMT COPYRIGHT 1999 IAC

AN 96:62840 PROMT
TI Bioengineered Tissue (Bone) "Bioactive Glass as Grafting Material in Experimental Defects." A.J. Aho, J. Heikkila and A. Yli-Urpo. Department of Surgery and Prosthetics, Turku University Central Hospital, Turku, Finland.
SO Blood Weekly, (18 Dec 1995) pp. N/A.
ISSN: 1065-6073.
LA English
WC 504
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB According to an abstract submitted by the authors to the 4th International Conference on Tissue Banking and the Clinical Application of Cell and Tissue Grafts, held October 16-18, 1995, in Leuven, Belgium, "INTRODUCTION: In addition to the use of allograft bank bone, a search for artificial alternative bone replacement materials, bone substitutes, has continued since 1920. Tricalciumphosphate, various hydroxylapatites and bioactive glasses and glass-ceramics are among the materials developed and studied for this purpose. Bioactive glasses are silica-based glasses. Through a controlled corrosion of the glass surface a calcium phosphate subsurface-layer is formed. Bone is able to grow together with this CaP-layer. A chemical bonding if formed. The purpose of the present study was to evaluate the biological behaviors, cellular reactions, bone bonding and amount of new bone in the defects. MATERIAL AND METHODS: Two types of **bioactive glass** material was implanted in the rabbit femur. Cones of S56.5P4 (9x4x2.5 mm) were implanted in the distal femur subchondral bone and granules S53P (diameter 630 - 800 micrometers) were implanted in principal cancellous bone. The composition of the cones was SiO[2] 56.50, Na[2]O 27.00, CaO, P[2]O[5] 4.00, and Al[2]O[3] 0.50 and that of the granules SiO[2] 53, Na[2]O 23.00, CaO 20.00, P[2]O, 4.00. The amount of the glass-bone towards implant material was analyzed by histology. Scanning electron microscopy (SEM) and energy dispersing x-ray (EDXA) was used to analyze the chemical bone bonding. RESULTS: In histomorphometry 78 and 79% of the cones were covered with new bone at 6 and 12 weeks. The corresponding figures for the defects filled with granules was 32 and 38%. The total filling rate (filler + new bone) was 60 and 59%. The **inflammatory** reaction of the defects did not differ from that of the control defects (empty defects and defects filled with autogenous bone). The chemical bonding between the implant material and bone observed using EDXA was principally similar using both glasses. The intimate contact was found using SEM with high magnification. No significant differences was observed in the amount of bone formation at the surface of hydroxyapatite or **bioactive glass** cones. The same was true when defects filled with **bioactive glass** granules and autogenous bone chips were compared. DISCUSSION: **Bioactive glass** in both compositions was confirmed to incorporate with the host bone.
THIS IS AN EXCERPT: COPYRIGHT 1995 Charles W Henderson
According to an abstract submitted by the authors to the 4th

International Conference on Tissue Banking and the Clinical Application of Cell a[redacted]ssue Grafts, held October 16-[redacted]1995, in Leuven, Belgium, "INTR[redacted]CTION: In addition to the use [redacted]llograft bank bone, a search for artificial alternative bone replacement materials, bone substitutes, has continued since 1920. Tricalciumphosphate, various hydroxylapatites and bioactive glasses and glass-ceramics are among the materials developed and studied for this purpose. Bioactive glasses are silica-based glasses. Through a controlled corrosion of the glass surface a calcium phosphate subsurface-layer is formed. Bone is able to grow together with this CaP-layer. A chemical bonding if formed. The purpose of the present study was to evaluate the biological behaviors, cellular reactions, bone bonding and amount of new bone in the defects. MATERIAL AND METHODS: Two types of **bioactive glass** material was implanted in the rabbit femur. Cones of S56.5P4 (9x4x2.5 mm) were implanted in the distal femur subchondral bone and granules S53P (diameter 630 - 800 micrometers) were implanted in principal cancellous bone. The composition of the cones was SiO[2] 56.50, Na[2]O 27.00, CaO, P[2]O[5] 4.00, and Al[2]O[3] 0.50 and that of the granules SiO[2] 53, Na[2]O 23.00, CaO 20.00, P[2]O, 4.00. The amount of the glass-bone towards implant material was analyzed by histology. Scanning electron microscopy (SEM) and energy dispersing x-ray (EDXA) was used to analyze the chemical bone bonding. RESULTS: In histomorphometry 78 and 79% of the cones were covered with new bone at 6 and 12 weeks. The corresponding figures for the defects filled with granules was 32 and 38%. The total filling rate (filler + new bone) was 60 and 59%. The **inflammatory** reaction of the defects did not differ from that of the control defects (empty defects and defects filled with autogenous bone). The chemical bonding between the implant material and bone observed using EDXA was principally similar using both glasses. The intimate contact was found using SEM with high magnification. No significant differences was observed in the amount of bone formation at the surface of hydroxyapatite or **bioactive glass** cones. The same was true when defects filled with **bioactive glass** granules and autogenous bone chips were compared. DISCUSSION: **Bioactive glass** in both compositions was confirmed to incorporate with the host bone. The original concept of Hench was thus confirmed. The formation of the reaction layer was mandatory for chemical bonding, and in some areas with apparent breakdown of the reaction layer a disturbed bone contact was observe. Equal amounts of new bone appeared at the surface of both **bioactive glass** and hydroxylapatite cones. No significant difference was seen in bone formation in defects filled with **bioactive glass** or autogenous bone. The uniform manufacture of the glass material with GLP and GMP guidelines is important for the future clinical use of these materials. CONCLUSIONS: **Bioactive glass** is suitable artificial bone grafting material and clinical studies are under way."

L3 ANSWER 11 OF 17 CAPLUS COPYRIGHT 1999 ACS
AN 1992:113613 CAPLUS
DN 116:113613
TI Injectable bioactive glass compositions and methods for tissue reconstruction
IN Walker, Dixon R.; Hench, June Wilson; Ramer, Marc; Hench, Larry L.
PA University of Florida, USA
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	[redacted]	APPLICATION NO.	[redacted]
PI	WO 9117777	A2	19911128	WO 91-US3596	19910522
	WO 9117777	A3	19920109		

W: CA, JP
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE

PRAI US 90-526638 19900522

AB An injectable hyaluronic acid (I) particulate glass compn. useful for the repair, reconstruction, replacement, augmentation or reconfiguration of hard bone or soft tissue anat. structures is disclosed. A **bioactive glass** compn. contg. SiO2 45, CaO 24.5, Na2O 24.5, P2O5 6% having particle sizes from 100-355 .mu.m were suspended in I and injection of 0.1 mL was made into the dome of the bladder in rabbits; s.c. of suspension of I alone may also made and the rabbits were killed after 12 wk. S.c. sites were examd. and were completely normal and the material could not be detected by histolog. techniques. The particles were present in the bladder wall between muscle fibers underlying the urothelium. They were surrounded by collagen fibers and cellular connective tissue at all times up to 12 wk. There was no **inflammation** around the site and the overlying urothelium was normal.

L3 ANSWER 12 OF 17 CAPLUS COPYRIGHT 1999 ACS
AN 1991:639630 CAPLUS
DN 115:239630
TI Bioactive bone cement: a composite of bioactive glass powder-ammonium-hydrogen-phosphate
AU Taguchi, Yasushi; Yamamuro, Takao; Nakamura, Takashi; Nishimura, Naomi; Kokubo, Tadashi; Yoshihara, Satoru
CS Fac. Med., Kyoto Univ., Kyoto, 606, Japan
SO Mater. Sci. Monogr. (1991), 69(Ceram. Substitutive Reconstr. Surg.), 85-92
CODEN: MSMODP; ISSN: 0166-6010
DT Journal
LA English
AB A rigid compd. was made from **bioactive glass** powders (AW-G) and ammonium-hydrogen-phosphate soln. (A-P) and was evaluated as a bioactive bone cement. A proximal metaphysis of the rat tibia was drilled and packed with 1) poly(Me methacrylate) (PMMA) bone cement, 2) (AW-G)-(A-P) bioactive bone cement, or 3) nothing as a control. The defective sites were histol. analyzed with different implantation periods up to 24 wk. Direct bonding between the bone and the present bioactive bone cement was confirmed by histol. and scanning electron micrograph and electron probe microanal. (SEM-EPMA). The **inflammatory** reaction of the bioactive bone cement was not so intense as that of the PMMA bone cement and the deterioration did not occur when implanted s.c.

L3 ANSWER 13 OF 17 MEDLINE
AN 90110261 MEDLINE
DN 90110261
TI Study of the osteoconductive properties of bioactive glass fibers.
AU Pazzaglia U E; Gabbi C; Locardi B; Di Nucci A; Zatti G; Cherubino P
CS Clinica Ortopedica dell'Universit`a di Pavia, Italy..
SO JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (1989 Nov) 23 (11) 1289-97.
Journal code: HJJ. ISSN: 0021-9304.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199004
AB **Bioactive glass** fibers have been prepared and implanted in cortical defect and in muscle. The fibers can act as a

substrate for bone apposition, when implanted in a cortical defect, and become incorporat[redacted] the new bone matrix. The sam[redacted]sults were obtained when fib[redacted]were implanted in a muscle po[redacted]together with bone marrow cells. An intense **inflammatory** reaction was observed when **bioactive glass** fibers were implanted in muscle; the reaction was milder when fibers were implanted in bone or in muscle together with bone marrow cells. This fact supports the hypothesis that osteogenic cells adhere in an early phase to the substrate and prevent recognition of the foreign material by **inflammatory** cells. This appears to be a fundamental condition for direct bone matrix apposition on the surface of fibers.

L3 ANSWER 14 OF 17 MEDLINE
AN 85079402 MEDLINE
DN 85079402
TI [Paranasal sinus reconstruction with bioactive bone cement--a 5-year animal experiment study].
Stirnhohlenrekonstruktion mit bioaktivem Knochenzement--5 Jahre tierexperimentelle Erfahrungen.
AU Reck R; Wallenfang T; Schindler E; Rudigier J
SO HNO, (1984 Oct) 32 (10) 413-6.
Journal code: G9P. ISSN: 0017-6192.
CY GERMANY, WEST: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA German
FS Priority Journals
EM 198504
AB The newly developed bioactivated bone cement Palavital is composed of polymethylmethacrylate, glass fibers and **bioactive glass** ceramic. The superficially located glass ceramic particles offer the possibility of true bonding of the bone cement to the bony implantation bed. Reconstruction of the frontal sinuses and the skull was performed on 9 dogs. The follow up was 14 days to 5 years. The implants were checked by tomography and histology. All implants were tolerated without any **inflammatory** reaction. The bond between bone and implant was demonstrated. Palavital seems to be an improvement on bone cement on a polymethylmethacrylate base.

L3 ANSWER 15 OF 17 CAPLUS COPYRIGHT 1999 ACS
AN 1983:113684 CAPLUS
DN 98:113684
TI Bioactive glass ceramic: a new material in tympanoplasty
AU Reck, Ralf
CS ENT Clin., Johannes Gutenberg Univ., Mainz, D-6500, Fed. Rep. Ger.
SO Laryngoscope (1983), 93(2), 196-9
CODEN: LARYA8; ISSN: 0023-852X
DT Journal
LA English
AB The use of the **bioactive glass** ceramic, Ceravital, in ear surgery was evaluated in animals. The glass ceramic implants were always well tolerated in the rabbits' middle ears without any **inflammatory** reaction. These implants were also used to reconstruct, partially or totally, the ossicular chain in humans. Better hearing results were achieved in all groups of trympanoplasties with Ceravital implants in patients with a total ossicular replacement. No inner hearing loss and no significant change in the early postoperative air-bone gap was obsd. in the small follow-up group. Thus, Ceravital is a valuable alternative to homologous implants.

L3 ANSWER 16 OF 17 MEDLINE
AN 82002758 MEDLINE
DN 82002758

TI Tissue reactions to glass ceramics in the middle ear.
AU Reck R
SO CLINICAL OTOLARYNGOLOG[redacted]1981 Feb) 6 (1) 63-5.
Journal code: DCQ. ISSN: 0307-7772.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198201
AB The **bioactive glass** ceramic "Ceravital" was used to fashion prostheses for the replacement of various ossicles in the middle ear. They were tested in 70 rabbit ears, where they were accepted in osseous areas without formation of surrounding fibrous tissue. Histological examinations regularly showed an osseous bond with the surrounding bony tissue. Mucous membrane covered these ossicular chain prostheses and showed no evidence of **inflammatory** reactions. Glass ceramic implants were also used to reconstruct the ossicular chain and the posterior wall of the outer ear canal in 100 patients. The functional results were satisfactory in all cases.

L3 ANSWER 17 OF 17 CAPLUS COPYRIGHT 1999 ACS DUPLICATE 3
AN 1979:109924 CAPLUS
DN 90:109924
TI Investigations with bioactivated poly(methyl methacrylates)
AU Hennig, W.; Blencke, B. A.; Broemer, H.; Deutscher, K. K.; Gross, A.; Ege, W.
CS Orthop. Hosp., Univ. Marburg, Marburg, Ger.
SO J. Biomed. Mater. Res. (1979), 13(1), 89-99
CODEN: JBMRBG; ISSN: 0021-9304
DT Journal
LA English
AB Compd. bone cement on a poly(Me methacrylate) [9011-14-7] base with an additive of **bioactive glass** ceramic particles in different portions and different particle sizes was tested in animal expts. The tissue reactions to extracorporeal polymd. specimens and to in situ polymd. specimens were obsd. The expts. with an implantation period up to 6 mo demonstrated a tight bonding between the newly formed osseous tissue and the glass ceramic particles at the interface. The **inflammatory** reactions in the vicinity of the implant are small. Thus, adherence of the bone cement at the interface was measured to achieve a more durable anchorage of bone cement in the tissue.